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CLAIMS 10/593448

1. A method for enhancing a first CT image composed of a plurality of elements, each having an intensity value in Hounsfield units indicative of a tissue type,

5 the method comprising:

receiving (101) said first CT image,

providing, by enhancement processing (103) based on said first CT image, a plurality of copies of said first CT image, said enhancement processing (103) being 10 performed with respect to predetermined intensity value ranges, and

15 combining (104) said plurality of copies of said first CT image with said first CT image, whereby an enhanced CT image is provided, said combining being based on a classification with respect to intensity values of regions within said first CT image and said plurality of 20 copies of said first CT image.

2. The method of claim 1, further comprising receiving an indication of said predetermined value 25 ranges and associating said predetermined intensity value ranges with said plurality of copies of said first CT image.

3. The method of claim 1, wherein said enhancement processing (103) is adaptive to a local structure defined by at least some of said plurality of elements.

4. The method of claim 3, wherein said local structure is defined by a group of elements whose intensity values are within said predetermined intensity value ranges.

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5. The method of claim 1, wherein said enhancement processing (103) comprises applying a non-linear filter to said plurality of copies of said first CT image.

6. The method of claim 1, wherein said enhancement processing (103) is selected from a group consisting of a noise reduction using a low pass filter, a contrast enhancement using unsharp masking, a rank filtering, an adaptive filtering, a mean-shift filtering, a variational method, a multiband technique and a wavelet technique.

10 7. The method as claimed in any one of the preceding claims, wherein combining (104) said plurality of copies of said first CT image with said first CT image comprises:

15 determining (1042) a first region mask for said first CT image, said first region mask defining an area within the first CT image, whose elements have intensity values within a first intensity value range,

20 determining (1042) a respective additional region mask for said plurality of copies of said first CT image, said respective additional region mask defining an area within a respective copy of said first CT image, whose elements have intensity values within said predetermined intensity value ranges, and

25 combining (1046) said first CT image and said plurality of copies of said first CT image, weighted by their respective region masks, whereby said enhanced CT image is provided.

30 8. The method of claim 7, further comprising prioritizing (1041) said first CT image and said plurality of copies of said first CT image, whereby an element of a CT image having a higher priority is

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included in the enhanced CT image and a correspondingly located element of a CT image having a lower priority is excluded from the enhanced CT image.

9. The method of any one of claims 7 or 8, further comprising smoothing (1044) said region masks.

10. The method of any one of claims 7-9, further comprising normalizing (1045) said region masks.

11. The method of any one of claims 7-10, further comprising subjecting at least one of said region masks to a morphological closing and/or opening algorithm.

12. The method of any one of the preceding claims, wherein said first CT image is selected from a group consisting of a two-dimensional array, a three-dimensional array and a four-dimensional array.

15 13. The method as claimed in any one of the preceding claims, wherein said first CT image is subjected to a second enhancement processing prior to said combining (104).

20 14. The method as claimed in claim 13, wherein said second enhancement processing is performed with respect to a second predetermined intensity value range.

15. A computer program product comprising software code portions for performing the steps of any one of claims 1-14, when said product is run on a computer.

25 16. A storage medium having stored thereon a computer program product according to claim 15.

17. A propagated signal comprising components for performing the steps of any one of claims 1-14.

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18. A device for enhancing a first CT image composed of a plurality of elements, each having an intensity value in Hounsfield units indicative of a tissue type, the device comprising:

5 receiving means (2) for receiving said first CT image,

processing means (3) arranged for providing, by enhancement processing (103) based on said first CT image, a plurality of copies of said first CT image, said 10 processing means (3) being adapted for enhancement processing with respect to predetermined intensity value ranges, and

means for combining (104) said plurality of copies of said first CT image with said first CT image, whereby 15 an enhanced CT image is provided, said combining being based on a classification with respect to intensity values of regions within said first CT image and said plurality of copies of said first CT image.

19. A method for enhancing a first digital image composed 20 of a plurality of elements, each having an intensity value, the method comprising:

receiving (101) a first digital image,  
providing, by enhancement processing (103) based on 25 said first digital image, a plurality of copies of said first digital image, said enhancement processing (103) being performed with respect to predetermined intensity value ranges, and

combining (104) said plurality of copies of said first digital image with said first digital image, whereby 30 an enhanced digital image is provided, said combining being based on a classification with respect to intensity values of regions within said first image and said plurality of copies of said first image.